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SUMMARY OF HEARINGS ON THE FUTURE OF THE NATION'S ENERGY UTILITIES: IMPLICATIONS FOR FEDERAL R.D. & D.

REPORT

PREPARED BY THE

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FOR THE

SUBCOMMITTEE ON
ENERGY DEVELOPMENT AND APPLICATIONS

TRANSMITTED TO THE

COMMITTEE ON SCIENCE AND TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES
NINETY-SEVENTH CONGRESS
SECOND SESSION
Serial U

MARCH 1982

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LETTER OF TRANSMITTAL

To All Members of the Committee on Science and Technology:

I am herewith transmitting a report prepared by the Congressional Research Service for the Subcommittee on Energy Development and Applications entitled: "Summary of Hearings on the Future of the Nation's Energy Utilities: Implications for Federal Research, Development and Demonstration".

The Energy Development and Applications Subcommittee held hearings on June 23 and 24, 1981 to examine implications for energy research, development and demonstration of the current financial and regulatory conditions facing the nation's energy utilities, especially the institutional changes in the utility industry that may impact the development and use of new energy technologies in both near-term and long-term. A wide range of valuable information was provided in the testimony received from eleven witnesses representing various areas of the utility industry. In view of the Committee's need to know more on this subject, this summary and analysis of the hearings was requested for our use in further deliberations and to aid us in our decisionmaking process on matters relating to the future of energy utilities.

Any comments from the Members of the Committee, other Members of Congress or private individuals will be welcome.

DON FUQUA
Chairman

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March 8, 1982

LETTER OF SUBMITTAL

The Honorable Don Fuqua, Chairman
Subcommittee on Energy Development
and Applications
Committee on Science and Technology
U.S. House of Representatives
Washington, D.C. 20515

Dear Chairman Fuqua:

In reply to your request, dated January 13, 1982, the following report was prepared by the Congressional Research Service for the Subcommittee on Energy Development and Applications as a summary of hearings held on June 23 and 24, 1981 concerning the future of energy utilities. The summary is divided into two major sections: the first presents a summary by witness, and the second by major theme.

The document was prepared by Karen Nelson of the Office of Senior Specialists and Fred Sissine of the Science Policy Research Division.

Sincerely,

Gilbert Gude
Director

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Washington, D.C. 20540

February 8, 1982

TO : Subcommittee on Energy Development and Applications
Committee on Science & Technology

FROM : Alvin Kaufman
Senior Specialist
Mineral & Regulatory Economics

SUBJECT: Hearings Summary - Future of Energy Utilities

In reply to the request of Mr. Fuqua, dated January 13, 1981, I am attaching a summary of the hearings held on June 23 and 24, 1981. The summary is divided into two major sections: the first presents a summary by witness, and the second by major theme.

The document was prepared by Karen Nelson of the Office of Senior Specialists, and Fred Sissine of the Science Policy Research Division.

Attached

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SUMMARY OF HEARINGS ON THE FUTURE OF THE NATION'S ENERGY UTILITIES: IMPLICATIONS FOR FEDERAL R.D. & D.

Prepared for the Subcommittee on Energy
Development and Applications of the
Committee on Science and Technology
U.S. House of Representatives
97th Congress
1st Session

By

Karen Nelson
Office of Senior Specialists
and
Fred Sissine
Analyst in Energy Technology

February, 1982

(IX)

PURPOSE OF THE HEARINGS

On June 23 and 24, 1981, the Subcommittee on Energy Development and Applications of the House Committee on Science and Technology held hearings on the future of the nation's energy utilities and its implications for Federal R.D. & D. Because the utilities utilize many of the technologies authorized by DOE, the committee's primary concerns were what the future strategies of energy utilities will be in regard to these technologies and the problems the industry and regulators may face in carrying out these strategies.

In opening the House hearings, Chairman Fuqua said: "The utilities' current financial situation and their ability to develop and utilize new technologies must be understood by the subcommittee if we are to make intelligent decisions about the DOE budget".

The purpose of the committee hearing was to explore some trends in the utility industry, such as alternate energy technologies, conservation, diversification, deregulation and various regulatory reforms.

Eleven witnesses were asked to testify. They were:

Charles Benore, Vice President, Paine, Webber, Mitchell and Hutchins, New York, New York
David Roe, Environmental Defense Fund, Berkeley, California
Terry Ferrar, Vice President, Regulatory Programs, Edison Electric Institute, Washington, D.C.
Charles Curtis, Van Ness, Feldman, Sutcliffe, Curtis and Levenberg, Washington, D.C.
Jim Walker, Commissioner, California Energy Commission, Sacramento, California
Robert Hemphill, Director, Division of Energy Conservation and Rates, Tennessee Valley Authority, Chattanooga, Tennessee.
Joseph Swidler, Leva, Hawes, Symington, Martin and Oppenheimer, Washington, D.C.
Guy Nichols, Chief Executive Officer, New England Electric System, Westborough, Massachusetts
Ralph Mitchell, Vice President, Conservation and Renewables, Arkansas Power and Light, Little Rock, Arkansas
Irwin M. Stelzer, President, National Economic Research Associates, Inc., New York, New York
Dr. Jay B. Kennedy, Executive Director, Electricity Consumers Resource Council (ELCON)

91-815 O - 82 - 2

SUMMARIES OF WITNESS STATEMENTS 1/

CHARLES BENORE OF PAINE, WEBBER, MITCHELL AND HUTCHINS

Mr. Benore expressed concern for the financial health of the electric utilities, emphasizing their low rate of return and inability to meet capital costs. The utilities' major problem, as he sees it, is that their profitability and its quality have been relatively low. Much of their profit consists of allowance for funds during construction (AFUDC). As a result, the company pays more in dividends than it earns in cash because cash to pay the dividends is derived from earnings per share less AFUDC. This has occurred because the industry has become an increasing-cost industry due to a combination of economic factors, including higher operating costs, need for larger investments, inflation, and decreased sales and revenue. (6)

Benore does not believe the utilities' problems reflect management deficiencies. Rather, the principal problem is the lack of adequate rate relief to cover costs, which are ever increasing. The utilities' return on equity of 11 percent is lower than the cost of the lowest risk, long-term capital (U.S. Government bonds). Another problem for the utilities industry is their failure to earn the returns that regulators consider fair, having earned only 75 percent of the allowed return in 1980. Industry common stock continues to be sold below book value. Electric power companies are finding it difficult to acquire financing for more than 10 year terms and have been unable to get more than 75 percent of the common equity capital sought because they are simply unable to make money on its common stock. (7)

1/ Numbers in parenthesis are page references in the statement of the witness.

Benore noted some of the recommendations for solutions to the utilities' financial problems proposed by an informal energy task force from the Reagan Admininstration Transition Team: Establish new standards for utility rate-making; include CWIP in the rate base; FERC should not be bound by state determinations in regard to establishing rates of return; require rates to become final a year after filing; tax legislation to stimulate savings and investment; allow current tax deductions for future waste disposal and nuclear plant decommissioning; federal loans and grants for conversion from oil; accelerate completion of new power plants; establish a task force to draft legislation to free the electric industry from unnecessary regulation. Benore also suggested that the government can help the financial condition of the industry by reducing dividend taxation and inflation, accelerating nuclear licensing, and implementing a solution for nuclear waste disposal. (9-10)

In terms of alternative industry structure, Benore listed diversification and deregulation. He believes diversification would not be satisfactory because it would have a small impact, and be gradual in nature as a consequence of the large size of companies. Their rate of return problem would still exist. Deregulation would not be a solution for the industry's immediate problems because it would not attract needed capital. He believes that the traditional model should remain intact, but include the following: The ability of companies to earn the true cost of capital; the ability to receive a fair price for services provided; communication with customers regarding increasing rates; a stabilization or reduction of inflation rates; and a reduction of planned construction expenditures. (10)

TERRY FERRAR, EDISON ELECTRIC INSTITUTE

Mr. Ferrar looked at the financial position of the electric utilities industry as it affects technology choice. He also considered the alternatives of diversification and deregulation. He began with a discussion of the financial position of the electric utilities industry, noting that the absence of a risk premium is the heart of the industry's financial problems. (23) That is, inflation has placed an additional financial burden on the industry by mismatching inservice dates with rate-base recovery of the costs of assets. New units account for a major portion of a company's total assets, resulting in a significant burden to industry. Understated costs and overstated earnings are eroding investor capital, requiring continued need for new capital from external sources. Ferrar has found what he terms an asymmetric risk-reward performance of utility commissions whereby ratepayers receive the benefits of successful projects and stockholders are burdened by the risk as a result of regulation. (26)

This financial situation and the asymmetric risk-reward environment affect the technology choice process of utilities. The result has been plant deferrals and cancellations. The type of technology chosen is therefore dependent on perceived investor risk. Expected rewards are largely denied the investor. In this regard, Ferrar reviewed different technology options and their potential as choices. (28-29) Because nuclear does not have a positive social assessment, it is often not considered a likely option, even though it is cost effective and consistent with national energy policy. Coal is more acceptable socially and the industry has had much experience with it, making it a favorable option. New technology-solar, wind, etc.- is capital intensive, there is limited industry experience and a question of social acceptability, making it an unlikely choice. Conservation is very acceptable, but the industry is financially weak and many conservation alternatives are quite capital intensive. In general, the

industry's weak financial condition tends to retard any technology options requiring external sources of capital. Relatively riskless options are favored. Ferrar stated that the reestablishment of life-cycle economic efficiency would better reward economically efficient technological choices. (30)

In addition to regulatory reform, Ferrar discussed the potential of unregulated diversified activities as a way to earn a reasonable rate of return. (32) He emphasized congeneration and small power production as promising utility ventures that would improve efficiency of energy use and reduce future construction needs. However, PURPA must be revised to allow utilities to more agressively pursue these technologies. This would involve certain privileges for utility-owned facilities, such as tax incentives, exemption from the Fuel Use Act, and rate reform. (33)

Ferrar believes that deregulation of utilities should be given consideration. (34) As a caution, he stated that the deregulation experiences of other industries cannot be directly transferrable to the electric utilities industry because it is uniquely capital intensive, has long lead times, is geographically fixed and highly integrated. Some of the benefits of the current planning environment which provide a stabilizing effect for long-range plans are still essential.

DAVID ROE, ENVIRONMENTAL DEFENSE FUND

Mr. Roe suggested that the real problems in the electric power industry stem from the current emphasis on the large, new, long-lead-time, capital intensive central station power plant and not enough emphasis on the simpler, alternative energy sources with already developed technologies near at hand. koe does not believe that the typical answer to the industry's financial problems -- more money and more new power plants -- is the solution. Utilities

he stated, have tied up more and more of their money in unfinished plants, thus eroding the book value of their stock. (120)

From studies conducted by the Environmental Defense Fund, Roe concluded that electric utility companies should not be putting any new money into building new plants. Rather, capital should be invested in a collection of alternative energy sources, including conservation. These sources can yield the same energy volume with the same reliability, in the same time frame, and at lower cost. (121) He reports that the trends are moving in this direction, especially in California. The primary attraction of these alternative energy investments to the utility is that each individual unit tends to be small and relatively quickly completed, so that investments enter the rate base with a relatively short lag time. In addition, the pace and direction of these investments are flexible to allow for changes in demand projections. (123)

This proposal is important for federal energy policy, Roe says, because it implies that required new energy is already available and this can help reduce investment risk. Lack of awareness of these energy sources is the primary obstacle. Roe believes the Federal government's priority should be to help the states analyze alternative energy sources, including acting as a clearinghouse for information so as to avoid repetition in research. (125)

In regard to deregulation, the Environmental Defense Fund does not oppose this change in principle, but stresses that the real solution lies within existing institutions in their existing form. (127) Roe questioned the need for differential regulatory treatment of utility subsidiaries developing new sources, especially if they are just as reliable and profitable as the utility. He argued that an unregulated subsidiary keeps the financial benefit of lower-cost service away from ratepayers and redistributes it to shareholders. This may be fine if it were true that these energy sources were riskier than conven-

tional plants, but often the reverse is true. In the case of independent third parties, the profit will go to them, and utility financial health will not improve. (128)

Whatever the case, the Defense Fund believes in a minimum of Federal intervention in policy decisions because of the risks of enforcing conformity and stifling innovation. Roe believes that issues such as deregulation should be resolved by the states. (128)

CHARLES CURTIS, VAN NESS, FELDMAN, SUTCLIFFE, CURTIS AND LEVENBERG

Mr. Charles Curtis testified primarily on the decontrol of electric power production. He began his testimony by describing the economic difficulties facing utilities. Specifically, rising costs and ineffective rate increase schedules have made the utility industry riskier than either the allowed or earned rates of return reflect. (146) He identified four alternative policies which address this financial problem of utilities: compensation, risk-shifting, diversification, and decontrol. The compensation option would increase the allowed rates of return. The risk-shifting option would create reforms in the regulatory process to allow for rate increases, cost adjustments, and recovery of construction costs in the rate base. The diversification option would turn investment toward non-regulated activities to improve performance and diversify risk. The decontrol option would remove utility-type regulatory controls on power production. (146)

In evaluating the decontrol option, Mr. Curtis pointed out that the " ... benefits, if realized, will be achieved over the very long term ... [while the] ... financial crisis confronted by the [utility] industry is substantial and immediate ...". (147) For this reason, he concluded that the best action for

near term results is rate regulatory reform, concentrating on improving efficiency and predictability, thus providing greater certainty. (147)

In regard to the likely effect of the decontrol option on the introduction of cogeneration and small wind, hydro, and solar technologies Mr. Curtis stated that the avoided cost provisions of the Public Utility Regulatory Policies Act (PURPA) " ... provides strong incentives to the development of these diversified power sources ...". (147) However, he also noted that if these regulatory aspects of PURPA contained in the decontrol option were removed by relieving utilities of purchasing output at the avoided cost, then " ... the decontrol option may result in a diminished market for decentralized applications." (147)

Mr. Curtis also testified on the likely status of large-scale power plant developments under the decontrol option. In this area, he stressed the difficulties associated with the use of project financing. First, these large facilities would require project financing with pay-outs in less than the 20- to 30- year period typical of utilities. Both project financing and a shorter pay-out period will increase costs. (148)

Secondly, he is concerned that project financing by nonutilities would stunt technological growth because the private producer would be bearing most of the risk of failure. (148) If the facility construction is to be financed by a separate entity, project financing probably will be required. (148)

In anticipation of expected difficulties with project financing, Mr. Curtis pointed out that " ... the deregulation option may provide an opportunity -- and the necessary political shelter -- for an otherwise willing state regulatory commission to allow something more than cost-based rates for investment in additions to capacity ..." . (148-149) Nevertheless, in regard to the effect of the decontrol option on large-scale facilities, he concluded that, although difficult to predict, financing of utility-owned central station power facili-

ties would tend to discourage technological innovation. (149) Overall, his evaluation of the decontrol option was not optimistic. He testified that he cannot state for certain whether deregulation would benefit the public and the industry or not. (149)

JAMES WALKER, CALIFORNIA ENERGY COMMISSION

Mr. James Walker testified on the topic of utility energy service corporations. In his testimony, he emphasized that the role of the utilities is changing. High energy prices, vulnerable oil supplies, and increasing inflation have combined to alter the supply and investment strategies of utilities. (162) These factors have changed the nature of consumer demand for energy, resulting in greater conservation efforts and a shift to alternative energy sources. (162) According to Mr. Walker, this change in attitude toward energy use has placed the utilities in a new setting. Utilities have gone from discouraging conservation to promoting conservation and "unselling" their original product. (162-163)

Mr. Walker also asserted that the utilities are also experiencing a significant change on the supply side of the energy landscape. The alternative supply sources have been another threat to traditional monopoly of the utilities, as the Federal Energy Regulatory Commission [FERC], in implementing PURPA, established policies requiring private utilities to buy at avoided cost the power produced by small, nonutility facilities. (163) In sum, Mr. Walker found that the utilities' role is being modified on both the demand and supply side. These changes, he believes, require a "rethinking of the role of utilities". Utilities have responded by developing new business strategies. (164) Mr. Walker identified several factors as components of this new strategy.

> "This evolution has increasingly entailed 'managing' demand growth, suspending new conventional base-load construction plans,

> ... more aggressively pursuing the renewable, PURPA-type resources ... and integrating backward into technology development in an effort to actually bring technologies to the marketplace rather than waiting ... for vendors to approach them ..." (164)

California experienced a dramatic drop in demand growth in 1980. He pointed out that this drop in demand growth is not the result of low economic growth since California is still experiencing a " ... healthy and robust economic growth". (163) Additionally, Mr. Walker indicated that the reduced demand has made the problem of capacity additions more manageable. (163)

In regard to the changing concept of a utility from an energy supply entity to an energy service entity, Mr. Walker explained that, because customer demand with an energy service operation is more for services than for straight kilowatt hours, life-cycle cost comparisons must be used in decision-making. (165) According to Mr. Walker, a basic part of this role change involves increased attention to the development of strategies for demand management. He indicated that the situation in California applies generally to the rest of the nation. Mr. Walker recounted that in California the Residential Conservation Service Program is a typical energy service program offered by utilities, whereby customers are given educational and financial assistance for conservation measures. California utilities are also involved in load management programs. (165-166)

Mr. Walker also pointed out some interesting developments in the supply-side implementation of the energy service concept. He observed that one major California utility had " ... recently announced a major policy shift toward renewables ... [which] incorporates over 1,900 Megawatts of renewable/alternative resources to be developed by 1990." (166) He also emphasized that the State of California is making major efforts to support these activities.

According to Mr. Walker, these efforts include substantial financial assistance for many alternative energy projects. (167) Additionally, Mr. Walker indicated that some local governments have supported a significant effort. (168)

In regard to R&D, Mr. Walker stressed the need for participation from many sectors. He testified that, to be effective, R&D efforts must be accomplished as a cooperative effort, not only among the utilties or industries involved, but also with the support of Congress and the DOE. (168)

Mr. Walker emphasized the basic nature of the role change affecting utilities. He pointed out that " ... concerns about the long-term health of utilities ... " has prompted the modification of their role. (167) Furthermore, he suggested that utilities will not be replaced by another type of institution, but that their role will be altered over time. (167) More specifically, he concluded that the managerial approach of the utilities must change to fit their new role. He believes utility management skills will have to develop greatly to meet the needs of a changing environment. Factors such as larger and more plants, and international involvements, among others, will change the way in which utilities have traditionally done business. (167-168)

ROBERT HEMPHILL, TENNESSEE VALLEY AUTHORITY

Mr. Robert Hemphill, Director of the Division of Energy Conservation and Rates for the Tennessee Valley Authority, testified primarily on the relationship of utilities' financial difficulties to economic growth, electric power price escalation, and monopoly on production. He began by stating that utility representatives often assert that the primary issue of discussion is " ... that the utilities are not making enough money." (191) Mr. Hemphill elaborated that utilities will be unable to build enough capacity, resulting in limited

economic growth and possibly insufficient generation. (191) He asserted that it is necessary to examine the three basic underlying assumptions of this argument.

Mr. Hemphill stated that one major assumption is that " ... economic growth demands electricity growth at a more rapid rate than in the economy, usually 1.2 to 2.2 times [the] economic growth [rate]." (191) As a challenge to this assumption, he argued that TVA's own experience has failed to prove this to be true. They have, in fact, found that economic growth may not demand electricity growth. (191)

Mr. Hemphill stated that a second assumption often underlying utility arguments about financial difficulties is that " ... costs are up dramatically." (191) This premise, he argued, is usually built into appeals for rate increases and regulatory relief. (192) Mr. Hemphill further asserted that elaborating the logic of the cost assumption to its final conclusion leads to a contradiction of the growth assumption. This is because in order to make more money utilities want to raise rates, but this would cause people to use less, decreasing the need for more money. (192) Continuing his examination of the cost assumption, he suggested that decentralized production sources may be a more cost effective alternative as opposed to the centralized stations now proposed, which may have even more questionable cost and liability and consumer acceptance than the decentralized station. (191-192)

The third assumption was identified as "monopoly mindset." (191) According to Mr. Hemphill, this attitude is characterized by power producers who believe that " ... a utility is granted a monopoly on production if there is no substitute for the product and people must keep using it." (191) In opposition to this assumption, he observed that electric consumption has limited growth while electricity prices are showing dramatic increase, these factors combining

to eventually diminish electric utilities' market share. (191) Furthermore, Mr. Hemphill asserted that " ... electric production should be decentralized, small, and nonmonopolistic if it is to be efficient." (191)

JOSEPH SWIDLER, LEVA, HAWES, SYMINGTON, MARTIN AND OPPENHEIMER

Mr. Joseph Swidler testified primarily on the impact of investment risk on technology development and the financial difficulties of utilities. He began by reviewing a report which points out that the authorized rate of return for utilities was never earned between 1972 and 1980. (254) Mr. Swidler elaborated that this period of inflation and tight finances caused rates of return to actually decline in that period to its lowest level in 1980, the difference having been termed attrition. (254) He went on to point out that the level of attrition grew from 0.2 percent in 1972 to 3.3 percent in 1980. (254) Mr. Swidler concluded that this gap constitutes a serious regulatory failure on the part of the commission. (254)

Mr. Swidler cited further data which indicates that utilities' " ... allowance for funds used during construction ... " had almost doubled during the same period, increasing from 30 percent to " ... almost 60 percent of their reported earnings on common equity." (254) This increase, he observed, severly impacts the utilties' credit and cost of money they must borrow. (254)

From Mr. Swidler's point of view, one unfortunate result of these trends is that an additional risk is being imposed upon utilities. He testified that this risk is derived from the fact that when plants are finally completed -- and would normally become part of the rate base and begin to earn cash returns on investment -- the utility commissions may decide to prevent their operation. (271) He testified that this is an additional burden for the utility, as these plants can sometimes make up the whole common equity of the company. (271) As

a result of this situation, Mr. Swidler suggested that utilities will be operating defensively by minimizing investment and risk as much as possible. (271) He further concluded that utilities will not be able to optimize long-term economy and efficiency as they will be unable to convert their plants from oil to coal in the near future unless the Federal Government helps with the financing. (271)

The licensing process was identified as another area of regulatory difficulty. According to Mr. Swidler, there are problems with licensing for both coal and nuclear plants. (271) However, he indicated that the problem is more acute with the process for nuclear facilities. He testified that the nuclear and environmental licensing processes need much improvement and that much of their inefficiencies are being borne by the electric utilities. (271)

On the other hand, Mr. Swidler suggested that financial problems and the growing risk associated with large plants would prompt utilities to take an aggressive posture toward energy conservation, and may even improve the prospect for the use of alternative energy technologies. He proposed that utilities will be emphasizing load management techniques, such as conservation, innovative rate designs, interruptable loads as a means of reducing the need for new capacity. Alternative technologies that are environmentally effective will also be used, which would also help reduce investment requirements. (271-272)

In addition to increasing efficiency and substituting alternative sources, Mr. Swidler indicated that utilities will also attempt to reduce capacity reserve margins and avoid involvement in the development of new capacity in order to avoid the investment risks. He suggested that capacity reserve margins will be reduced primarily toward the end of the 1980s. (272) Additionally, he projected that utilities will try to avoid investments in new capacity. He believes they will be selling off their interests in new plants to public and

91-815 O - 82 - 4

cooperative systems having access to Federal tax-free financing. This, he says, would not reduce costs. Rather, it would shift the burden to the Federal taxpayer. (271) As an alternative to capacity investments, Mr. Swidler proposed that the utilities will increasingly participate in diversification enterprises related to the expertise they have gained from running the electric power business. (272)

In evaluating the trends that appear to be emerging from the increased investment risks, Mr. Swidler attempted to draw out some implications for the national economy. He suggested that a low load growth rate at the level of some of the forecasts would not propose a problem, but any higher growth rate would prove to cause serious trouble in terms of meeting demand. (272) In regard to research and development, Mr. Swidler concluded that there would be little money available for such activity because of the high risk levels involved as well as the high costs of equipment required. The result will be a slowdown in technological development except in the areas of safety, reliability, and efficiency improvements of existing plants. (272)

Mr. Swidler raised one additional issue. He stated that regulatory agencies are required by the Constitution to accord investors in utility businesses " ... due process and a reasonable return on the investment." (273) However, he asserted that this requirement has not been effective under inflationary conditions and the courts have not helped in guiding the utility commissions in this area. (273) Nevertheless, Mr. Swidler concluded that the situation for utilities may be improving as FERC is showing an awareness that utilities require greater earnings in order to be able to provide their stockholders with reasonable returns, but it is not yet possible to say whether the regulatory situation will be cured. (273)

GUY NICHOLS, NEW ENGLAND ELECTRIC SYSTEM

Mr. Nichols centered his statement around diversification activities of electric utilities and specifically, those taken by the New England Electric System in an attempt to overcome some of the financial problems faced by the industry. Nichols reiterated the feelings of previous speakers, that electric companies have been unable to cope with inflation. As a result, companies have turned to other opportunities in order to achieve a fair rate of return for investors.

New England Electric's so-called NEESPLAN is an attempt to work out a non-adversary relationship with customers by planning the company's efforts around major customer concerns -- cost and overdependence on foreign oil. (302) The first of its five major programs is load management and conservation which will help the company avoid building additional generation, thus keeping customer costs down. (303) Second, is a coal conversion program, which should help to drastically reduce dependence on oil. The company has already shown a striking decrease in foreign oil dependence, dropping from 78 percent in 1979 to under 30 percent at the end of 1981, and expecting to be only 10 percent dependent by 1985. (304)

The third NEESPLAN program is oil and gas exploration which was begun in 1974 in order to help keep costs down and to prove to regulators that the company is trying to hold costs down, so as to maintain their protection over fuel clauses in customer electric bills. (300) The fourth major project for the company will be the development of 200 megawatts of alternate energy sources. (304) This will be the company's only additional generating commitments. Finally, New England Electric has invested in several diversified activities. These new businesses include the oil and gas exploration mentioned previously,

shipping, engineering and construction, an energy research institute, and TWACS, a two-way automative communication system. (305)

The company realized that large amounts of capital from electric utility investors have been expropriated to subsidize utility customers, thus lowering the market price of utility shares below book value. (305) Because of the low price of shares and reduced earning potential of existing shareholders, utilities, through load management and conservation, are avoiding any expansion. (306) Thus, Nichols' company has diversified for several reasons: To improve earnings, market price, access to capital, and management capabilities, as more good people will be attracted to a growth, as opposed to a no-growth, industry. (306)

On the subject of deregulation of electric utilities, Nichols emphasized the fact that total, as opposed to partial, deregulation is not being considered by anyone. He, as a businessman, would be enthusiastic about total deregulation because his low-cost plants built with yesterday's dollars could easily compete with any new high-cost plants. However, total deregulation, he believes, would never be politically acceptable. Partial deregulation brings with it several problems, including questionable assurance of future generation and transmission, and possible "cream skimming", whereby competitors will be inclined to enter only the lucrative markets and leave the burden of serving the poorer markets to established utilities. He suggested that the solutions to deregulation problems are probably more expensive than the solutions to the industry's current problems. If deregulation is attempted it must be done in an evenhanded way so that electric utilities can compete at the same level as non-utility entrants in the field. (307-308)

RALPH MITCHELL, ARKANSAS POWER AND LIGHT

Diversification in the electric utilities industry is, in Mr. Mitchell's opinion, not a panacea for the financial problems of the industry, yet it does have a poetntial as a viable new business opportunity which must stand on its own feet. Mr. Mitchell specifically discussed the need for increased electric utility participation in the development of cogeneration and small power production and the regulatory reforms required to facilitate an increased level of participation. Many of the issues involved can be applied to the development of other energy sources and technologies important to the future. (350) At present, there exists a regulatory bias toward nonelectric utility development of cogeneration. Thus, the electric utilities face a potential loss of electric revenues. In addition, this bias limits electric utility diversification into steam sales. Mitchell feels that regulation in the cogeneration area is unnecessary as it is adequately competitive. (351)

The initiatives in cogeneration taken by Arkansas Power and Light explain what led them to their views. Their studies found that industry development of cogeneration was constrained by capital limitations, lack of operating expertise, and environmental considerations, thus there would be little possibility that many industrial companies would initiate cogeneration production. (352-353) Thus, AP & L concluded that they could provide cogeneration service to industry and remove the constraints to industry's own development. The two major difficulties AP & L faced in this venture was first, that it required a clean fuel, preferably not oil or gas, so they turned to a central coal gasification facility, a gas pipeline distribution system and combined cycle cogeneration facility. Secondly, they faced legislative and regulatory treatment that favors utility cogeneration development by nonelectric entities. (354)

AP & L's interest in cogeneration stems from its desire to preserve its market, diversify, and receive a possible higher rate of return if the sector is unregulated. (355) The company feels that electric utilities are especially prepared to develop cogeneration because they have the expertise and experience in the capital markets; small industrial or commercial concerns may benefit from utility cogeneration which they would normally not find economically feasible to invest in alone; and there would be a more effective integration of cogeneration and other technologies in a centralized system. (355-357)

In order to facilitate utility development of cogeneration, legislative action to change PURPA must occur. Those facilities which are more than 50 percent utility-owned should be exempt from FERC and State rate regulation and put on an equal par with the less-than-50 percent-owned facilities which are already exempt from these regulations. (358) The incentives must be the same for both types of facilities so that electric utilities can be competitive and thus attract investors, as the latter prefer unregulated facilities with higher rates of return. The tax incentives should also be extended to utilities. (360)

IRWIN STELZER, NATIONAL ECONOMIC RESEARCH ASSOCIATES

Mr. Irwin M. Stelzer testified primarily on barriers to utility use of energy conservation and alternative energy technologies. He began by suggesting that there are four institutional arrangements in the utility sector that impede market acceptance of new technologies: overdependence on tax subsidies, restriction of invovlement in cogeneration, limitation on investment in conservation, and reluctance to emphasize end use in R&D efforts. (364)

In regard to the first barrier, Mr. Stelzer stated that utilities have not adapted to the changing environment for their product. He observed that the industry has been over-subsidized and regulators have priced utility products

inefficiently. Prices have been based on historic average cost while newer generating capacities are much more expensive than the old. (362) Mr. Stelzer also noted that the " ... effect [of these pricing policies] on new technology is very profound". (362) He suggested that new technologies should be competing at current cost. Presently, they are competing with components bought at current prices and also with electric and gas that is priced uneconomically at historic costs. This process tends to discourage new technologies. (362) According to Mr. Stelzer, the use of tax incentives has upset any impetus to change which could be derived from the pricing mechanism. He asserted that the tax incentives Congress mandated for energy conservation have primarily benefited the wealthy, while taking away from the poor. (363) In regard to the relative expense of renewable energy technologies to centralized generation, he remarked that the removal of existing tax incentives would reveal that the latter source is the cheaper of the two. (362) However, he emphasized that all subsidies should be removed in order to " ... let the field sort itself out, let the customers decide which technologies they prefer". (362-363)

The second barrier Mr. Stelzer identified relates to the effect that the implementation of PURPA may have on the price signal that consumers receive. He pointed out that PURPA should remain intact, as it has proven to be a useful tool in moving State commissions, who can help to get proper price signals to customers. (363) However, Mr. Stelzer also indicated that there are two impediments which have inhibited the impact of PURPA. One problem is " ... the avoidance of the avoided cost standard". (363) According to Mr. Stelzer, on one side the electric utilities are questioning the reliability of some alternate energy sources, and on the other side, the cogenerators or the small power producers want more than avoided costs. (363) The appropriate policy response, he

suggested, is for Congress to encourage FERC to urge state regulators to speed action on establishing avoided costs. (363)

Mr. Stelzer noted that a second impediment to PURPA effectiveness is the restrictions it places on utilities. In this regard, he recommended removing restrictions that act as barriers to utility-development of cogeneration so that they will be free to center the business if they so desire. (363)

The third barrier Mr. Stelzer identified relates to limitations on utility involvement in the conservation business. He suggests that this barrier is derived from an unfounded fear that utilities will monopolize the business. (364) Mr. Stelzer explained that utilities, if allowed to enter the business, would not have excess profits from the electric business to use as subsidies for other endeavors. They would be subject to run a conservation subsidiary as a separate entity subject to standard antitrust rules. Therefore, they should be allowed to compete in the conservation business, but on an economic basis, not requiring interest-free loans from utilities as in California. (363-364)

According to Mr. Stelzer, the last barrier involves the conduct of R&D by the utilities. One point he made referred to the source of funding for the Electric Power Research Institute and the Gas Research Institute. (GRI) He emphasized that this issue involves the use of cutomers' money, not stockholders, because the money for R&D is added onto utility bills. (364) As for the use of research monies, Mr. Stelzer wonders whether there should be more activity on the part of utilities to "go on the customer's side of the meter" rather than concentrating so much effort on capital intensive projects, as is the case with GRI. (364) On the basis of these two observations, he recommended that the structure of research and development should be reexamined. (364)

JAY KENNEDY, ELCON

Mr. Kennedy addressed several issues, including electric utility financial health, the full service energy company, deregulation, alternate technologies, and conservation. Kennedy asserted that the industry's poor financial status will result in inadequate capacity after 1990. (380) One of the utility problems as seen by the Electricity Consumers Resource Council (ELCON) was, and is, insufficient revenues, which PURPA did not solve through rate reform. ELCON sees as another utility problem that of customers being subsidized by utility stockholders, a problem PURPA did not address. In order to improve the industry's financial health, Kennedy promotes the retainment and improvement of state regulatory authority; an adequate rate of return; regulatory reform in regard to rates and barriers to innovation; regulatory control over the expanding scope of electric utility responsibilities; and allowing Reagan's Economic Recovery Program time to have an effect on lowering inflation and interest rates. ELCON believes that the electric utility industry should remain investor-owned, as the problems facing the industry are not attributable to its ownership. (381-382)

One of the alternatives to present industry structure is the so-called "Energy Service Company Option," whereby utilities expand the scope of their operations. Kennedy questioned whether this type of company would perform better than one in the traditional structure. (383) Another possible change in structure would be deregulation, which can mean either removing all economic deregulation of generation, or deregulating only new generating plant additions. However, Kennedy sees no benefits to deregulation over the present structure. (385) If new plants are built unregulated, the output price would be based on current costs, helping to push up electric rates. (386) Kennedy suggested that rather, rate bases should be reevaluated. (386) Before implementing deregula-

tion several issues must be addressed: Avoiding anti-competitive collusive behavior, developing an adequate number of companies to assure competition, resolving problems of wheeling (using facilities of one company to transmit services of another); avoiding the possibility of nationalization of certain aspects of the industry, reducing state regulators' authority by requiring them to pass through price changes not under their control, assuring adequate capacity, evaluating what happens to the concept "obligation to serve", and determining whether deregulation would be a vehicle for pushing new energy sources as a replacement for the generating function. (387)

The problem with the developing technologies, according to Kennedy, is that they may work, but they cannot play a significant role in the overall U.S. energy balance prior to the early 21st century because of technological and economic limitations. (388) These limitations include high initial costs, the need for central station back-up, and adverse environmental impacts. Because these alternative energy sources cannot solve our near-term energy needs, Kennedy believes that present emphasis must be on coal and nuclear. In order to promote these sources, plant licensings must be accelerated. (389)

ELCON strongly supports conservation, but believes that present government conservation programs involving electric utilities are not the best vehicle for achieving desired conservation results. Under government financial aid programs all customers share the costs, but all do not benefit, nor do they benefit equally. (390) In Kennedy's opinion, if conservation programs include utilities they should yield benefits greater than costs, allocate costs to customers in proportion to the benefits received, establish costs only after public review, and adjust costs and benefits for their risk and timing. (391)

MAJOR THEMES

I. THE NATURE OF FINANCIAL DIFFICULTIES FACED BY THE UTILITY INDUSTRY

A. ECONOMIC AND INSTITUTIONAL LIMITATIONS

1. Deteriorating Investment Climate

Most witnesses agreed that the economic environment is reducing utilities' ability to finance investments. Several factors were identified as contributing to this phenomenon. According to Robert Hemphill and James Walker, one factor is increasing fuel costs. Hemphill argued that utilities want to raise rates in order to make more money, but increased rates would, in turn, cause people to use less energy. Further, reduced energy use would decrease the need for more plants, and thereby eliminate the utilities' need for more money. (192) Hemphill concluded that decentralized production resources would be more cost efficient than the central stations now proposed. Mr. Walker agreed, arguing that higher fuel costs are causing consumers to conserve more and to switch to alternate energy sources. This trend, he explained, may require an alteration in the role of utility companies: they must develop new business strategies that account for the slow growth in electricity demand. (162)

Swidler, Ferrar, and Walker agreed that inflation is a major source of utilities' economic problems. Joseph Swidler claimed that inflation caused rates of return to decline between 1972 and 1980. (254) He also stated that inflationary conditions have not allowed the constitutional requirement of "due process and a reasonable rate of return on the investment" to be effective. (273) Terry Ferrar asserts that inflation has placed an additional financial burden on the industry by mismatching inservice dates with rate-base recovery

of the costs of assets (23) This, he added, results in the absence of a risk premium, the heart of the industry's financial problems. Mr. Walker included inflation as one of the factors which changes the nature of consumer demand for energy. (162)

Guy Nichols claims that because utility companies have not been able to cope with inflation, many have turned to other opportunities in order to achieve a fair rate of return for investors. (299) Charles Benore blames the utilities' low profitability on the fact that the utility industry has become an increasing cost industry. This, he said, is due to a combination of economic factors, including inflation, higher operating costs, need for larger investments, and decreased sales and revenue. (6)

Increasing investment risk for utilities was discussed by Swidler and Ferrar. Mr. Swidler contends that the increase in utilities' allowance for funds during construction, from 30 percent to 60 percent of reported earnings on common equity, severely impacts the utilities' credit and cost of money they must borrow. (254) An additional risk being imposed upon utilities, he testified, is derived from the fact that when plants are finally completed -- and would normally become part of the rate base and begin to earn cash returns on investment -- the utility commissions may decide to prevent their operation. (271) Swidler also suggested that the growing risk associated with large plants is prompting utilities to take an aggressive posture toward energy conservation, and may even improve the prospect for the use of alternative energy technologies. (271) Mr. Swidler indicated that utilities will attempt to reduce capacity reserve margins and avoid the development of new capacity in order to avoid these investment risks. (272) In regard to research and development, Mr. Swidler concluded that there would be little money available for such activity because of the high risk levels involved as well as the high costs of equipment required. (272)

Mr. Walker argued that the decreased growth in demanded as a result of inflation has created a need for utilities to plan new business strategies. (162) This change in consumer behavior, has forced utilities to promote conservation, whereas they previously were promoting the increased use of electric power. (163) Mr. Walker noted that California utilities experienced a dramatic drop in demand growth in 1980, which was not the result of low economic growth. (163) Additionally, he indicated that this reduced demand has made the problem of capacity additions more manageable. (163) In changing policies to meet the slowing demand, Mr. Walker observed that utilities have initiated Residential Conservation Service Programs and have begun shifting to alternative and renewable resources. (165-167)

Mr. Swidler noted that uncertainty in demand projections have complicated investment planning for utilities. He stated that the low growth rate projected in some forecasts would not indicate a supply problem, but the higher growth rates in demand estimated by other projections could be difficult to meet. (272)

2. Regulatory Restrictions

Some witnesses suggested that present regulations are barriers to the efficient operation and development of electric utility companies. Charles Benore points to regulatory limitations on allowances for rate increases as one such restriction. Benore believes that the utilities' primary problems is not management, but the lack of rate relief to cover ever increasing costs. He supports proposals made by the Reagan Transition Team that would allow CWIP to be calculated in the rate base and require rates to become finalized within one year after filing. (9)

Another regulatory barrier identified by Benore and Swidler regards the licensing difficulties for central station plants. According to Mr. Swidler,

there are problems with licensing for both coal and nuclear plants. (271) However, he indicated that the problem is more acute for nuclear facilities. He further testified that the nuclear and environmental licensing processes need much improvement and that many of their inefficiencies are being borne by the electric utilities. (271) Benore concluded that the government can help the financial condition of the industry by accelerating nuclear licensing. (10)

Mr. Mitchell emphasized that some regulatory restrictions create a bias toward non-utility development of alternate energy sources. (351) This regulatory bias, he argued, results in a potential loss of electric revenues for the utilities and limits their diversification into steam sales. What is needed, he testified are incentives for electric utilities to develop cogeneration and small power production. Mr. Mitchell suggested that the competition encouraged by PURPA in the cogeneration area is proper and regulation is unnecessary. (351) He sees electric utilities as better prepared to take on the development of cogeneration because of their expertise in the capital markets and technology experience. (355) Mr. Mitchell argued further that legislative action to change PURPA is necessary to encourage utility development of cogeneration. He concluded that facilities which are more than 50 percent utility-owned should be exempted from Federal Energy Regulatory Commission (FERC) and State regulations prescribed in PURPA and put on an equal par with the less-than-50 percent-owned facilities which are already exempt from these regulations. (358)

Terry Ferrar emphasized that cogeneration and small power production are promising utility ventures that could improve the efficiency of energy use and reduce future construction needs. (33) However, he also argued that PURPA must be revised to allow utilities to more aggressively pursue alternate energy

technologies. Ferrar said this would involve certain privileges for utility-owned facilities, such as tax incentives, exemption from the Fuel Use Act, and rate reform. (33)

B. MANAGERIAL LIMITATIONS

James Walker stressed that the changing role of utilities requires more highly developed management skills in electric utility companies. (167-168) He pointed out that utilities have been suddenly faced with the need to promote conservation, which they had traditionally discouraged and had little experience in producing or marketing. Thus, their monopoly was being threatened and they had to begin "unselling" their own product. (162-163)

Several witnesses pointed to management failure as the cause of some of the utilities' problems. David Roe commented that utilities have done poor investment planning, tying up more and more of their money in unfinished plants, thus eroding the book value of their stock. (120) He testified that capital would be better invested in a collection of alternative energy sources and conservation rather than in new plants. (121)

Mr. Hemphill noted that a "monopoly mindset" has emerged. This attitude, he argues, is characterized by power producers who believe that a utility's monopoly status over production means there is no substitute for the product and people must keep using it. (191) In contrast to this assumption, he observed that electric consumption has limited growth while electricity prices are showing dramatic increases. Mr. Hemphill concluded that these factors eventually combine, and thereby diminish electric utilities' market share. (191)

II. ALTERNATIVE POLICIES TO IMPROVE FINANCIAL STATUS

A. MODIFY INVESTMENT POLICIES

1. Reduced Investment in Capacity Development

Most of the witnesses suggested a readjustment of investment strategies by utilities in order to cope with their present financial problems. Joseph Swidler concluded that the high risks utilities are subject to may cause them to operate defensively by minimizing investment and risk. (271) Mr. Swidler indicated that two such defensive measures are reduced capacity reserve margins and less involvement in the development of new capacity. (272) He added that reduced capacity reserve margins will occur primarily toward the end of the 1980s. (272) Mr. Swidler also testified that utilities will be selling off their interests in new plants to public and cooperative systems having access to Federal tax-free financing. This, he stated would not reduce costs. Rather, it would shift the burden to the Federal taxpayer. (271)

2. Diversification of Business Structure

Mr. Swidler proposed that utilities will increasingly participate in diversification enterprises as another alternative to capacity investments. Terry Ferrar agreed that unregulated diversified activities may help utilities earn a reasonable rate of return. (32) He emphasized that cogeneration and small power production are promising utility ventures that would improve efficiency of energy use and reduce future construction needs. Charles Benore did not agree that diversification would help alleviate financial difficulties. He argued that diversification would have only a small impact and this impact would be gradual as a consequence of the large size of companies. The rate of return problem, he stated, would still exist.

Mr. Guy Nichols testified that the New England Electric System has diversified for several reasons: to improve earnings, market price, access to capital, and management capabilities, since more good people will be attracted to a growth, as opposed to a no-growth, industry. (306)

3. Conservation

One of the alternatives to present industry structure is the so-called "Energy Service Company Option," whereby utilities expand the scope of their operations to such activities as new generating methods and conservation promotion. Several witnesses discussed the utilities' increasing involvement in alternate energy sources and conservation.

James Walker stated that the changing nature of consumer demand for energy has resulted in greater conservation efforts and a shift to alternate energy sources. (162) Specifically, Mr. Walker observed that the role of utilities is shifting and expanding to include activities such as promoting conservation, "managing" demand growth, more aggressively pursuing renewable resources, and taking greater part in technology development. (164) He also argued that the emphasis of customer demand for services, rather than for straight kilowatt hours, means that life-cycle cost comparisons must be used increasingly in decision-making. (165) Mr. Walker mentioned that California utilities have developed a demand management strategy which includes implementation of the Residential Conservation Service Program, whereby customers are given educational and financial assistance for conservation measures. He further testified that California utilities are also involved in load management programs. (165-166)

Mr. Swidler suggested that financial problems and the growing risk associated with large plants would prompt utilities to take an aggressive posture

toward energy conservation, and may even improve the prospect for the use of alternative energy technologies. (271) He proposed that utilities will be emphasizing load management techniques such as conservation, innovative rate designs, and interruptable loads as a means of reducing the need for new capacity. (271-272) Guy Nichols added that New England Electric, in its attempt at conservation, is also concentrating a major effort on a load management program aimed at helping the company to avoid building additional generation, and thereby keep customer costs down. (303)

Mr. Jay Kennedy questioned whether an energy service company would perform better than one in the traditional structure. (383) He also stated that the Electricity Consumers Resource Council (ELCON) strongly supports conservation, but believes that present government conservation programs involving electric utilities are not the best vehicle for achieving results. Mr. Kennedy also suggested that under government financial aid programs all customers share the costs, but all do not benefit, and those who do benefit do not benefit equally. (390) In Kennedy's opinion, utilties should pursue conservation programs only if they yield benefits greater than costs, allocate costs to customers in proportion to the benefits received, establish costs only after public reviews, and ajust costs and benefits for their risk and timing. (391)

Mr. Irwin Stelzer suggested that a regulatory barrier to utility involvement in conservation has been derived from an unfounded fear that utilities will monopolize the business. (364) Mr. Stelzer explained that utilities, if allowed to enter the business, would not have excess profits from the electric business to use as subsidies for other endeavors. They would be required to run a conservation subsidiary as a separate entity subject to standard antitrust rules. Therefore, they should be allowed to compete in the conservation busi-

ness, but on an economic basis, not requiring interest-free loans from utilities as in California. (363-364)

4. Alternative Power Production Technologies

On the supply side of the energy service concept, some witnesses observed that utilities are shifting increasingly to alternate energy sources. Mr. Swidler also noted that in addition to conservation, utilities will be increasingly turning to environmentally acceptable and cost effective alternative technologies in order to help reduce investment requirements. Mr. Walker pointed out that one major California utility is planning to make a major policy shift toward renewables. (166) He also emphasized that both State and local governments are assisting utilities in many alternative energy projects. (162) Additionally, Mr. Walker stated that many utilities view the implementation of PURPA as a threat to their traditional monopoly over power production. (163)

Mr. Stelzer discussed price and cost barriers (produced by government) which impede utilities' entry into alternative energy technologies. He noted that inefficient pricing policies have put these technologies in competition with components bought at current prices and with electricity and gas that is priced at historic costs. This policy, Stelzer asserted, tends to discourage the use of new technologies. In regard to the cost of renewable energy technologies relative to centralized generation, he remarked that the removal of existing tax incentives would reveal that the latter source is the cheaper of the two. (362) However, he emphasized that all subsidies should be removed in order to "...let the field sort itself out, let the customers decide which technologies they prefer." (362-363) Mr. Stelzer also stated that there are some barriers in getting the proper price signals to the customers. One problem, he noted, is "... the avoidance of the avoided costs standard", which, according

to Mr. Stelzer, faces several objections. On one side the electric utilities are questioning the reliability of some alternate energy sources, and on the other side, the cogenerators or the small power producers want more than avoided costs. (363) The appropriate solution to the conflict, he suggested, is for Congress to encourage FERC to urge State regulators to speed action on establishing avoided costs. (363) Another problem he sees is the barriers to utility-development of cogeneration, which he feels should be removed so utilities will be free to enter the business if they so desire. (363)

David Roe stated the he favors utilities increasing investments in a collection of alternative energy sources, including conservation. (121) These sources, he stated, can yield the same energy volume with the same reliability in the same time frame, and at lower cost. (121) Mr. Roe asserted further that the advantage of these investments to the utility, is that each individual unit tends to be small and relatively quickly completed, so that investments enter the rate base with a relatively short lag time. In addition, he noted that the pace and direction of these investments are flexible enough to allow for changes in demand projections. (123) Mr. Roe testified that the Federal Government's priority should be to help the states analyze alternative energy sources, and act as a clearing house for information so as to avoid repetition in research. (125)

Mr. Kennedy testified that alternate technologies have technological and economic limitations which will keep them from playing a significant role in the overall U.S. energy balance prior to the early 21st century. (388) He specified that these limitations include high initial costs, the need for central station back-up, and adverse environmental impacts. Mr. Kennedy concluded that since these alternative energy sources cannot solve our near-term energy needs, the present emphasis must be on coal and nuclear sources. (389)

Terry Ferrar agreed with Mr. Kennedy that there is little promise for the development of either conservation projects or alternative energy sources. He explained that this situation is the result of the industry's weak financial situation and what he terms an "asymmetric risk-reward" environment. In such an environment, he stated, ratepayers are receiving the benefits of successful projects and stockholders are burdened by the risk as a result of regulation. (26) He concluded that options for new technology -- solar, wind, etc. -- remain unlikely since they are capital intensive, have had little industry exposure and have questionable social acceptability. (29-30) Conservaton, he asserted, is very acceptable socially, but the industry is financially weak and many conservation alternatives are quite capital intensive. (30)

B. REGULATORY REFORM POLICIES

Most witnesses testified that there is a need for some sort of regulatory reform regarding electric utilities. The reform measures most frequently mentioned related to rate of return, investment risk, electric utility deregulation, and tax subsidies.

1. Compensation Through Increased Rates of Return

Mr. Swidler noted that electric utility companies have failed to obtain the allowed rate of return. (254) He elaborated that the recent period of inflation and tight finances has caused rates of return to decline steadily (in real terms) since 1972, reaching its lowest level in 1980. (254) He attributed this regulatory failure to state public utility commissions. (254) He pointed out further that regulatory agencies have not been effective in allowing investors in utility businesses "...due process and a reasonable return on the investment" as required in the Constitution. (273) Mr. Swidler concluded,

however, that the situation of utilities may be improving as FERC is showing an awareness that utilities require greater earnings in order to be able to provide their stockholders with reasonable returns. Nevertheless, he stated that it is not yet possible to say whether the regulatory situation will be cured. (273)

Mr. Benore also proposed allowances for an adequate rate of return to improve the utilities' financial health. Benore pointed out that the utilities' return on equity of 11 percent is lower than the lowest risk, long-term U.S. Government bonds. (7) He added that utility industry common stock continues to be sold below book value. (7) Additionally, he mentioned that electric power companies are finding it difficult to acquire financing for more than 10-year terms, and they have been unable to get more than 75 percent of the common equity capital sought in 1980. (7) Mr. Benore concluded that investors are not attracted to the industry because they are simply unable to make money on its common stock. (7) One of the regulatory reforms suggested by Charles Curtis was risk-shifting, which would allow for rate increases, cost adjustments, and recovery of construction costs in the rate base. (146)

2. Decontrol of Electric Power Production

Curtis, Kennedy, Nichols, Roe, and Ferrar raised the issue of decontrol of utilities. Most of the witnesses agreed that they were not completely certain of the exact effects of decontrol on the public and the industry, but could only speculate. In evaluating the decontrol option, Mr. Curtis pointed out that:

> "...benefits, if realized, will be achieved over the very long term... [while the] ... financial crisis confronted by the [utility] industry is substantial and immediate...". (147)

For this reason, he concluded that rate reform would be a better course of action for near term results. (147)

In regard to the likely effect of the decontrol option on the introduction of cogeneration and small wind, hydro, and solar technologies, Mr. Curtis stated that the avoided cost provision of PURPA "...provides strong incentives to the development of these diversified power sources...". (147) However, he also noted that if PURPA was amended by relieving utilities of purchasing output at the avoided cost, then "...the decontrol option may result in a diminished market for decentralized applications." (147)

Mr. Curtis also testified on the likely status of large-scale power plant developments under the decontrol option. In this area, he stressed the difficulties associated with the use of project financing. One difficulty he identified was that these large facilities would require project financing with pay-outs in less than the 20- to 30-year period typical of utilities. (148) According to Mr. Curtis, both project financing and the shorter pay-out period will increase costs. (148) Additionally, he expressed concerned that project financing by non-utilities would stunt technological growth because the private producer would be bearing most of the risk of failure. (148) However, Mr. Curtis suggested that this difficulty may also apply to utilities. He explained that facility construction is to be financed by a separate entity, project financing probably will be required. (148)

In anticipation of difficulties with project financing, Mr. Curtis pointed out that "...the deregulation option may provide an opportunity -- and the necessary political shelter -- for an otherwise willing State regulatory commission to allow something more than cost-based rates for investment in additions to capacity...". (148-149) Nevertheless, he concluded that the decontrol option could lead to project financing of utility-owned central station power facilities which, in turn, would tend to discourage technological innovation. (149) Overall, Mr. Curtis was not optimistic in his evaluation of the decontrol option.

Mr. Kennedy also expressed concern about the decontrol option, citing several issues that must be considered before taking such action. He suggested that, in general, there are no benefits to decontrol over the present structure. (385) According to Mr. Kennedy, if new plants are built in an unregulated environment, the output price would be based on current costs, helping to push up electric rates. (386) He also suggested that rate bases should be re-evaluated. (386) The issues he suggested must be addressed before implementing deregulation include: Avoiding anti-competitive collusive behavior, developing an adequate number of companies to assure competition, resolving problems of wheeling (using facilities of one company to transmit services of another), avoding the possibility of nationalization of certain aspects of the industry, reducing State regulators' authority by requiring them to pass through price changes not under their control, assuring adequate capacity, evaluating what happens to the concept "obligation to serve"; and determining whether deregulation would be a vehicle for pushing new energy sources as a replacement for the generating function. (387)

Mr. Nichols also questioned the possible effects of decontrol and the problems that it might raise. He distinguished between total and partial decontrol, and noted that total decontrol is not being considered by anyone. (307) He indicated that, as a businessman, he would be enthusiastic about total deregulation because his low-cost plants built with "yesterday's" dollars could easily compete with any new high-cost plants. However, Mr. Nichols also stated that total deregulation would never by politically acceptable. Partial deregulation, he added, would bring with it several problems: questionable assurance of future generation and transmission, and possible "cream skimming" whereby competitors will be inclined to enter only the lucrative markets and leave the burden of serving the poorer markes to established utilities. (307)

Mr. Nichols suggested that solutions to deregulation problems would probably be more expensive than solutions to the industry's current problems. (308) He concluded that if deregulation is attempted, it must be done in an evenhanded way so that electric utilities will be able to compete at the same level as non-utility entrants in the field. (308)

Mr. Roe stressed that the real effectiveness of deregulation lies with existing institutions in their existing form. (127) He questioned the need for differential regulatory treatment of utility subsidiaries in the business of developing new energy sources, especially if the subsidiaries are just as reliable and profitable as the parent utilities. (128) Mr. Roe noted that an unregulated subsidiary keeps the financial benefit of lower-cost service away from ratepayers, and redistributes it to shareholders. This, he argued, may be fine if it were true that these energy sources were riskier than conventional plants, but often the reverse is true. (128) He further indicated that where independent third parties are allowed to operate, they will obtain the profits and utility financial health will not improve. (128)

Mr. Ferrar expressed the need to consider the practical effects of deregulation. However, he also cautioned that the deregulation experience of other industries cannot be directly transferred to the electric utilities industry because it is uniquely capital intensive, has long lead times, is geographically fixed, and highly integrated. (34) Some of the benefits regulations provide for the current planning environment provide a stabilizing effect for long-range plans and are still essential. (34)

3. Change Tax Subsidies

Some witnesses expressed concern for taxation and subsidies. Mr. Stelzer claimed that the electric utility industry has been oversubsidized and plagued

with uneconomic pricing. (363) He explained that the use of tax incentives has upset any impetus to change which could be derived from the pricing mechanism. (363)

Mr. Benore agreed that there are some reforms necessary in the area of taxation and subsidies. He argued for tax legislation to stimulate savings and investments, allowing current tax deductions for waste disposal and nuclear plant decommissioning, and Federal loans and grants for conversion from oil. (9) Mr. Benore also suggested that the Government can help the financial condition of the industry by reducing dividend taxation. (9)

C. MODIFY NATIONAL ECONOMIC POLICY

Because inflation is fueling increased construction costs, and high interest rates are making the acquisition of capital by utilities difficult, some witnesses suggested that a change in national economic policy would be the most effective way to help utilities. Mr. Benore mentioned that a reduction in dividend taxation and a stabilization or reduction of inflation rates would help the industry regain some financial strength. He also suggested that the government allow current tax deductions for future waste disposal and nuclear plant decommissioning, and establish loans and grants for conversion from oil. Mr. Kennedy felt that an allowance of sufficient time for President Reagan's Economic Recovery Program to take effect would lower inflation and interest rates. He argued that reductions in inflation and interest rates would assist utilities by making capital more accessible and increasing the utilities' ability to cover costs.